
GeoMAC Users Guide Introduction

The National Interagency Fire Center (NIFC), its member agencies – Bureau of Land Management, Bureau of Indian Affairs, U.S. Fish and Wildlife Service, National Park Service, National Weather Service and U.S. Forest Service - and the U.S. Geological Survey welcome you to the GeoMAC website.

This Users Guide is designed as a comprehensive source of detailed information about the website, the mapping application and the map layers which can be viewed in the mapping application. We hope it helps you navigate the website.

The Users Guide is organized into two sections:

1. The GeoMAC Application section contains information and detailed instructions for using the GeoMAC mapping application. The GeoMAC mapping application is accessed from the “Wildfire Mapping” category on the Home Page. It also includes the information that can be accessed in the “About GeoMAC” category from the Home Page.
2. Map Layer Information contains specific information about each layer that is used in the GeoMAC mapping application and includes the map layer legends.

GeoMAC is an interactive mapping application utilizing ArcIMS technology. It is supported by the National Interagency Fire Center and is housed and developed at the USGS Rocky Mountain Mapping Center in Denver, Colorado. For additional information or other questions, please contact GeoMAC at geomac@usgs.gov.

GeoMAC Home Page

The Home Page contains links to information about GeoMAC, to the GeoMAC mapping application and to this Users Guide. These are accessed from the “**About GeoMAC**” “**Wildfire Mapping**”, and “**Users Guide**” frames respectively.

It also lists contact information in case you have questions regarding the GeoMAC website. The agencies involved in the production and maintenance of GeoMAC are listed as **The GeoMAC Team**. This listing also functions as links to each of the agency’s websites. There are also links to the Department of Interior and Department of Agriculture web sites at the bottom of the screen.

The “**System Requirements**” link at the bottom of the page provides information about Supported Operating Systems and Browsers and about browser settings.



GEOMAC
WILDLAND FIRE SUPPORT

Geospatial Multi-Agency Coordination

About GeoMAC
Why was GeoMAC created?

Wildfire Mapping
Locate current wildfires near you.

Users Guide
Learn how to use the mapping application

The 2002 GeoMAC Team

BLM National Office of Fire and Aviation
USFS Fire and Aviation Management
NPS Fire Management Program Center
National Interagency Fire Center
National Weather Service NOAA
Bureau of Indian Affairs NIFC
U.S. Fish and Wildlife Service
Geospatial Task Group
U.S. Geological Survey

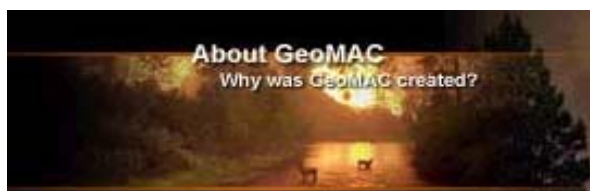
For questions about wildfire activity, please contact:
National Interagency Fire Center 208-387-5050

For questions regarding the GeoMAC website, please contact:
geomac@usgs.gov

System Requirements

Home Page Categories

About GeoMAC



To obtain information about GeoMAC and why it was created, click '**About GeoMAC**'.

A second page pops-up with links to **What is GeoMAC**, **The Need**, **How it Works**, **The GeoMAC Team**, a **Disclaimer**, and **Contact Information**. Clicking these topics will display information related to the above headings. Clicking on the '< home' or '< back' link at the bottom-center of these pages will bring you back to the previous page.



What is GeoMAC?

The Geospatial Multi-Agency Coordination Group, or GeoMAC, is an internet-based mapping tool originally designed for fire managers to access online maps of current fire locations and perimeters in the conterminous 48 States and Alaska. Using a standard web browser, fire personnel can download this information to pinpoint the affected areas. With the growing concern of western wildland fires in the summer of 2000, this application also became available to the public. We hope that you find this important information both timely and helpful.

The Need

On September 22, 2000, more than 79,000 fires had burned an estimated 6,838,748 acres along with hundreds of structures and valuable natural resources. Over 25,00 firefighters, 900 fire engines, 200 helicopters and all available air tankers were deployed on the fire-lines; many of those resources had been fighting fires since early May. Long-term weather forecasts indicated that the hot, dry conditions throughout the west would continue until fall weather brought enough rain to put out the larger fires. Across the west, priorities were set by geographic fire coordination centers for deployment of fire fighting resources based on human safety, protection of property and natural resource values. Determining these priorities required more information than printed maps and situation reports provided. Fire managers requested a real-time application that provided geospatial information on the status, locations and proximity of wildfires to life, property and infrastructure. A visual representation of the active fires gave managers a better idea of where to focus resources. Rising to this challenge, the website named GeoMAC was implemented. This site was online during 2001 and 2002 and will remain online for the 2003 fire season.

How it works

In order to give fire managers near real-time information, fire perimeter data is updated daily based upon input from incident intelligence sources, GPS data, and infrared (IR) imagery from fixed wing and satellite platforms. The GeoMAC web site allows users in remote locations to

manipulate map information displays, zoom in and out to display fire information at various scales and detail, including downloading desired information and printing hard copy for use in fire information and media briefings, dispatch offices and coordination centers. The fire maps also have relational databases in which the user can display information on individual fires such as name of the fire, current acreage, and other fire status information.

A drop down menu for **[Technical Information]** is also available on this page. This submenu includes a **Summary**, the **Technical Overview** and a **Data Flow Diagram**.

The GeoMAC Team

The team is a multi-agency group with technical and subject matter experts from the Department of Interior's fire management agencies – the Bureau of Land Management, National Park Service, U.S. Fish and Wildlife Service, and the Bureau of Indian Affairs, and United States Forest Service of the Department of Agriculture. As the sole science agency for the Department of the Interior, the U.S. Geological Survey also plays a pivotal role. Other partners include the National Interagency Fire Center, U.S. Department of Interior – Office of Wildland Fire Coordination, U.S. Department of Agriculture, and the National Oceanic and Atmospheric Administration. Private corporations including ESRI, ERDAS, Sun Microsystems, and IBM provided mapping software applications, computer hardware and technical expertise to the GeoMAC effort.

Disclaimer

Disclaimer: Information presented on this website is a representation of the existing wildfire situation occurring in the continental United States including Alaska. While every effort is made to provide accurate and complete information, proximity of fires to populated areas may not be accurately portrayed. Please refer to the Map Layer Information subheading under GeoMAC Help for specific definitions of data layers. The same information is available under HELP while using the map.

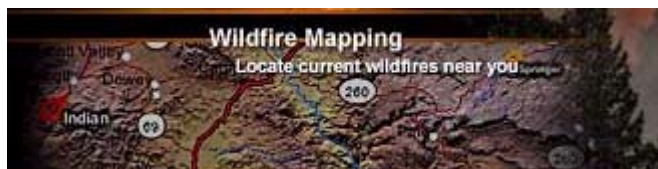
Contact Information

GeoMAC is housed at the U.S. Geological Survey's Rocky Mountain Mapping Center in Denver, Colorado.

GeoMAC
Building 810, Denver Federal Center
Denver, CO 80225, USA
E-mail: geomac@usgs.gov

Drop down menus for **[Additional Contacts]** and **[Wildfire Related Links]** are also available on this page. The **User Feedback Form** can also be found on this page.

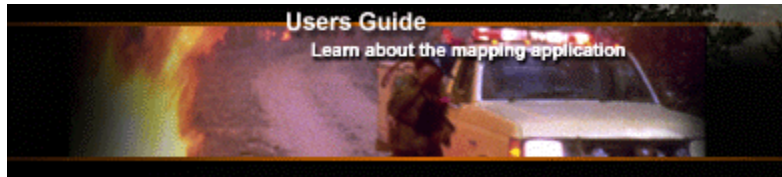
Wildfire Mapping



To access the GeoMAC mapping application, click the **"Wildfire Mapping"** link.
A new window will open the GeoMAC Application

Detailed instructions and information for using **The GeoMAC Application** begin on the next page of this document.

Users Guide



To open this users guide, click the **'Users Guide'** frame. The users guide consists of one document available in Adobe Acrobat (.pdf) format.

The GeoMAC Application

After clicking the **Wildfire Mapping** link, the GeoMAC Application opens in a new window.



As the application is loading, the **Loading...** message will be displayed in the map-frame window. A map of the contiguous U.S. with green triangles representing fire locations will appear.

GEOMAC
WILDLAND FIRE SUPPORT

Wildfire Viewer

Jump to Fire:

Map Layers

Visible Active

- ☒ Active Fires
- ☒ Active Perimeters
- ☐ Previous 2003 Fires
- ☐ Previous 2003 Perimeters
- ☐ 2002 Fires
- ☒ States
- ☒ Shaded Relief

Locator On Hyperlink

Full Extent Identify

Zoom In Print

Zoom Out Lat/Lon

Back Reload

Pan Help

Refresh Map
Active Layer Info
Perimeter Upload

UPDATED: Thermal AVHRR 2002-10-01 0227 (GMT); Thermal MODIS 2003-03-11 1820 (GMT); Fire Perimeters 2003-03-11; Sit Reports 2003-04-03

Note: You will need to wait until the entire map is displayed and the 'Loading' message disappears before proceeding.

If the above actions don't occur, your computer may not be configured properly to view the GeoMAC application. To review the system requirements, click on the **Systems Requirements** link at the bottom of the Home Page. Technical difficulties and questions with the GeoMAC website can be reported to geomac@usgs.gov

The **Triangles** on the screen are the reported National Large Fires which are stored in the National Interagency Fire Center's (NIFC) database in Kansas City, Missouri hosted by the U.S. Forest Service. Information about each data-set layer is available by clicking on **Help** and then clicking the subheading **Layers** button. (*This information is also contained this Users Guide.*)



Information about the data layers is also available by clicking on the '**Active Layer Info**' button on the bottom right corner of the screen.

1. Click the '**Active Layer**' radio button to select the layer you want information about, then
2. Click the '**Active Layer Info**' button
(A new window will pop-up displaying helpful information about the chosen layer)

Site Navigation

At the top right corner of the GeoMAC Application, you will see a **[Jump to Fire]** drop down menu:



Jump to Fire allows you to choose a specific fire and quickly '**zoom in**' to that location.

1. Click on the **[Jump to Fire]** drop down menu and choose an active fire.
2. After a fire is selected, the '**Loading**' message will display in the map window.
(Wait until the entire map is displayed and the message disappears before proceeding.)
3. The chosen fire will be displayed in the Map-Frame with a shaded relief background. Major rivers and roads are also displayed.

Below the **[Jump to Fire]** pop-up menu is the '**Go To Alaska**' button:

Go To Alaska**Leave Alaska**

The **Go To Alaska** button will display Alaska with its associated base layer data and fire information. The **Leave Alaska** button will take you back to the lower 48 state view.

Below the **[Jump to Fire]** pop-up menu are the '**Layer**' and '**Legend**' buttons:

Layer

Legend

The Layer and Legend buttons toggle between a list of layers available to be selected for display in the map-frame window and display of the legends for the visible layers. (**Layer** is selected by default when the application is started).

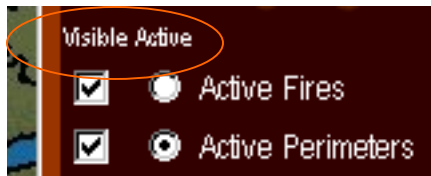
Layer

Clicking the '**Layer**' button will display a list of all of the layers available for the selected scale of map being displayed in the map-frame window.

You may change the map's scale by selecting: [**Jump to Fire**], '**Zoom In**' or '**Zoom Out**'. The available Layer list adjusts accordingly to the map's selected scale.

Visible and Active Layers

Each layer has two modes, '**Visible**' and '**Active**':



Visible - The visible checkbox works in conjunction with the '**Refresh Map**' button (located in the lower-right corner of the application).

To make a '**Visible Layer**' display in the Map-Frame:

1. Click the check-box in front of the layer name
(A check mark will appear/disappear in the box)
2. Click the '**Refresh Map**' button to redraw the map displaying the new layer, and all other 'visible' layers, in the Map-Frame. This action also adds the legend information for the visible layers to the legend listing.

Active - The **Active** radio-buttons work along with the tool buttons at the bottom of the application.

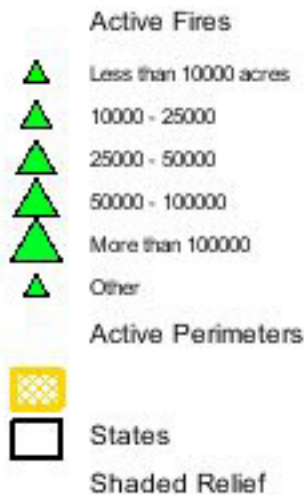
Note: While many layers may be visible at a given time, only one layer at a time can be designated as active.

To change the **Active** layer:

1. Click on the radio-button in front of the layer name
(A dot will appear in the center of the radio-button and the message "**'Layer Name'** is now the **Active Layer**" will be displayed in the text-frame in the lower-right corner of the application, just below the map)
2. The **Hyperlink** and **Identify** tools can be used to select an 'object' on the map that coincides with the current '**Active Layer**'.
(Text information/data about the selected object from the active layer will be displayed in a pop-up window)

Legend

Clicking the '**Legend**' button displays the symbols and attributes of the current visible layers:



The above legend window displays the legends for 5 visible layers: “Active Fires”, “Active Perimeters”, “States”, and “Shaded Relief”.

Note: It is necessary to click the *Refresh Map* button after a layer is made visible to have the layer's legend information visible in the legend window.

Function Buttons

In the lower-right corner of the GeoMAC application are three function buttons:

Refresh Map

Clicking the **Refresh Map** will redraw the Map after changing the **Visible** layers. (The map will redraw, and the layers with the **Visible check-box** checked will be displayed). Clicking the **Refresh Map** button also adds the legend information for the layer to the legend display list.



Active Layer Info

The **Active Layer Info** button is used to display the *Map Layer Information* about the Active layer.



Perimeter Upload

The **Perimeter Upload** button is **for use only by Fire Personnel and GIS Specialists in the field** to send in perimeter data for posting on the website. It is password protected and not for public use.



Tools

Along the bottom of the GeoMAC application are 12 tool buttons:

Locator Off	Full Extent	Zoom In	Zoom Out	Back	Pan
Hyperlink	Identify	Print	Lat / Lon	Reload	Help

When a function has a *lasting action*, the text color of the tool button changes from white to highlighted-yellow. In the above figure, **Zoom In** is the current map action. While **Zoom In** is selected, the Map-Frame will always be in **Zoom In** mode. Other buttons functioning the same way are: **Zoom Out**, **Pan**, **Hyperlink**, and **Identify**. **Zoom In** is the default action when the application is started.

When a function is *single action*, **Back**, **Full Extent**, **Reload** and **Help**, the action is completed, but no visible change to the text color of the tool button is made.

The **Locator On**, **Locator Off** tool buttons function as a toggle. Clicking the text toggles between Locator On and Locator Off and controls display of the small locator map in the upper left corner of the map window. When the application is started, **Locator On** is selected with a yellow highlight.

The **Print** and **Lat/Lon** tool buttons open second display windows which request additional user input.

The functionality of all of the tool buttons is discussed in detail below:

Tool Button Functionality

Locator Off	Turns off location diagram found in upper left corner, this button appears when the location diagram is not displayed.
Locator On	Turns on location diagram found in upper left corner, this button appears when the location diagram is displayed.
Zoom In	Zooms in to a position clicked on or a box dragged on the map. To drag a box on the screen, click on the screen, holding the mouse button down, drag the mouse across the page. A red box will appear, release the mouse button and the display will be repositioned on the outlined area.
Zoom Out	Zooms out on a position clicked on or a box dragged on the map. To drag a box on the screen, click on the screen, holding the mouse button down, drag the mouse across the page. A red box will appear, release the mouse button and the display will be repositioned on the outlined area.
Full Extent	Zooms out to the initial view of the lower 48 states
Back	Zooms to the previous map displayed on the screen. This is inactive until the user changes extents.
Pan	Pans the map as the user drags the pointer across the map. To pan, click on the screen, hold down the mouse button and move the mouse around. The map will move along with the mouse. Release the mouse button to stop panning. The map will redraw to display the new position.
Hyperlink	Hyperlink displays to the user additional information that is available through the active layer. Only two layers. Active Fires and RAWS Weather Stations have hyperlink

capabilities. If a different layer is Active, a message is displayed stating that hyperlink is not available.

Identify

Allows the user to click a feature and see a list of its attributes. For example, you are interested in more information about a specific fire. With the Active Fires as the Active layer, click on Identify, next, click on one of the green triangles. Information about that fire is displayed in a pop up window. Use the scroll bars to display information that may be further to the right and not visible.

Print

Clicking on Print allows the user to print the map viewed on the screen. When the Print options pop up, chose a print size, type in the desired title in the white box with the text 'Wildfire Information'. Click on the Print Preview button. You will see the message below. Click on OK. The map will be displayed. To print, use the File/Print on the browser window.



FOR BEST RESULTS: Before sending to your printer, go to your page and/or print set-ups to define your paper size as: letter (8.5 x 11), with 0.5 margins and set page orientation to landscape.

OK

Lat / Lon

Allows the user to enter a latitude and longitude so they can quickly jump to that location on the map.

Reload

Reloads the current mapping application. This can be used to resize the map if you change the size of the browser window.

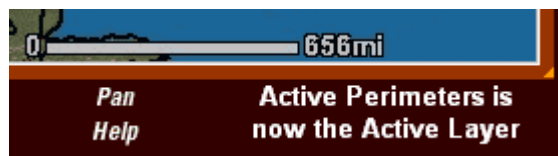
Help

Sends the user to the help page.

Text – Frame

The **Text-Frame** appears below the lower right corner of the map-frame window. It is used to display the **Active Layer**.

Select an active layer by clicking the radio button in the Active column. The message "**Layer Name** is now the **Active Layer**" will be displayed in the text-frame.



The date and time for data that is **UPDATED** daily is displayed along the bottom of the window.

GeoMAC Layer Information

This section contains descriptions, legends and additional information about the data layers within the GeoMAC mapping application.

GeoMAC Layer Scale Limits

The layer information within the GeoMAC mapping application is turned on/off at different scale levels to minimize processing time. Some layers are displayed at all scale levels, while other layers will only appear when zoomed-in to a particular scale level.

The following table displays at what scale the layers are turned on/off:

In Decimal Degrees

Layer	(Max) Scale	(Min) Scale
Active Fires	-	-
Active Perimeters	-	-
Thermal AVHRR	1:18 million	1:300,000
Thermal MODIS	1:18 million	1:300,000
Previous 2003 Fires	-	-
Previous 2003 Perimeters	-	-
2002 Fires	-	-
Previous AVHRR	1:18 million	1:300,000
Previous MODIS	1:18 million	1:300,000
RAWS Weather Stations	1:18 million	-
Cities	1:18 million	-
Road Shields	1:18 million	1:300,000
Roads	1:18 million	1:300,000
Roads (DRG)	1:300,000	-
States	-	-
Counties	1:5 million	-
Land Status	1:3 million	-
Water Bodies	1:18 million	-
Rivers	1:18 million	-
Urban Interface	1:12 million	-
Shaded Relief	-	-

(-) - indicates no scale limit

Active Fires

This layer displays point data for large active fire incidents that have been entered into the [NIFC](#) Oracle database maintained in Kansas City. This database is updated every morning, and includes (or provides links to) information such as fire name, percent contained, latitude and longitude coordinates, event ID, size (in acres), start date, reporting date, priority, personnel committed, general location, estimated damage, estimated cost, and cause.

The size of the map symbol is directly related to the size of the fire. A large incident will be displayed in the Previous 2003 Fires layer once it is no longer active.

Map Legend:

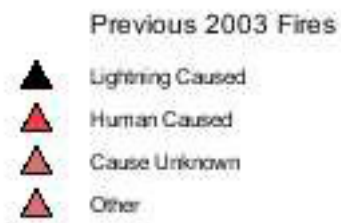


Previous 2003 Fires

A large fire incident will be displayed in the Previous 2003 Fires layer once it is no longer active. This layer displays point data for large nonactive fire incidents that have been entered into the

[NIFC](#) Oracle database maintained in Kansas City. This database is updated every morning, and includes (or provides links to) information such as fire name, percent contained, latitude and longitude coordinates, event ID, size (in acres), start date, reporting date, priority, personnel committed, general location, estimated damage, estimated cost, and cause.

Map Legend:



Active Perimeters

This layer contains fire perimeters that are submitted to GeoMAC by field offices. The fire perimeters are updated every one or two days, as the data is made available. If we have received no new data, the "expired" layer is not replaced. The layer is replaced as soon as we receive an updated file. Perimeters are usually collected on a daily basis for large fires that are growing. However, there may be gaps in daily coverage.

Perimeters are collected in the field by a variety of means, including infrared flights, and by using a GPS unit to map the perimeter. **Please NOTE:** GeoMAC only displays perimeter data as they are submitted by field offices. Since data are not received for all fires, you may not be able to view perimeters for every fire.

A perimeter is displayed in one of two ways depending upon how old it is. Once a perimeter is more than two days old, or is replaced by a more current perimeter, it is displayed in blue-gray in the Previous 2003 Perimeters layer. Also, perimeters are usually no longer collected in the field once a fire is no longer growing in size and is mostly contained.

NOTE: The Identify button will display information for all Active and Previous 2003 Perimeters features. Active Perimeters and Previous 2003 Perimeters are displayed in separate layers so that the user need not view numerous inactive fire perimeters. The user can choose to display the Active Perimeter while not displaying the Previous 2003 Perimeters. BUT, an Identify will list ALL of the features, both Active and Inactive. Thus, if a user has Active Perimeters visible as the active layer, a fire site will not display if no perimeter data has been received within the last 24 hours, BUT an Identify will list all inactive current year data for that fire. The reverse is also true, i.e., if the Previous 2003 Perimeters layer is visible and active, an Identify will show all data at the site, Active AND Inactive.

Map Legend:



Previous 2003 Perimeters

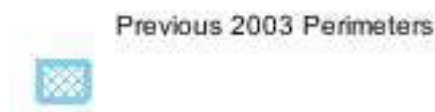
This layer contains all fire perimeters that were submitted to GeoMAC by field offices for the current year. Perimeters are collected in the field by a variety of means, including infrared flights, and by using a GPS unit to map the perimeter.

Please NOTE: GeoMAC only displays perimeter data as they are submitted by field offices. Since data are not received for all fires, you may not be able to view perimeters for every fire.

Once a perimeter is more than two days old, or is replaced by a more current perimeter, it is displayed in blue-gray in the Previous 2003 Perimeters layer. Also, perimeters are usually no longer collected in the field once a fire is no longer growing in size and is mostly contained.

NOTE: The Identify button will display information for all Active and Previous 2003 Perimeters features combined. Active Perimeters and Previous 2003 Perimeters are displayed in separate layers so that the user need not view numerous inactive fire perimeters. The user can choose to display the Active Perimeters while not displaying the Previous 2003 Perimeters. BUT, an Identify will list ALL of the features, both Active and Inactive. Thus, if a user has Active Perimeters visible as the active layer, a fire site will not display if no perimeter data has been received within the last 24 hours, BUT an Identify will list all inactive data for that fire (Inactive current year data). The reverse is also true, i.e., if the Previous 2003 Perimeters layer is visible and active, an Identify will show all data for the fire site, Active AND Inactive.

Map Legend:



2002 Fires

A large fire incident that occurred in the 2002 fire season will be displayed in the 2002 Fires layer.

This layer displays point data for the large fire incidents that were entered into the NIFC Oracle database maintained in Kansas City in 2002. This database includes (or provides links to) information such as fire name, percent contained, latitude and longitude coordinates, event ID, size (in acres), start date, reporting date, priority, personnel committed, general location, estimated damage, estimated cost, and cause.

Map Legend:



Thermal AVHRR

The USDA - Forest Service collects fire perimeters and heat source outlines as vector polygons from a thermal IR image of the 1km-resolution Advanced Very High Resolution Radiometer (AVHRR) satellite sensor. The polygons are updated twice daily by the USDA-FS office in Ogden, Utah, and are made available as ArcInfo export files on an FTP site.

AVHRR update times shown on the bottom of the Wildfire Information web page are derived from the original USDA-FS export file names, which are in Zulu/Greenwich Mean/Coordinated Universal Time format. Use the following to convert Zulu/GMT/CUT (GMT) to local time:

	Early April to late October	Rest of the Year
Eastern	GMT - 4 hours	GMT - 5 hours
Central	GMT - 5 hours	GMT - 6 hours
Mountain	GMT - 6 hours	GMT - 7 hours
Pacific	GMT - 7 hours	GMT - 8 hours

On GeoMAC, the Thermal AVHRR layer is generally updated daily, as the data are made available to us. However, there may be gaps in daily coverage as explained below. If we have received no new data, the "expired" layers are not replaced. The layer is replaced as soon as we receive an updated file.

GeoMAC only displays data *as they are submitted*. Since data are not received for all fires, you may not be able to view all fires. Once a file is more than 24 hours old, or is replaced by a more current file, it is displayed in the Previous AVHRR layer. Also, data are usually no longer collected in the field once a fire is no longer growing in size and is mostly contained.

NOTE: We must set scale dependencies for the thermal layer to turn off when zoomed down to the scale of the 1:100K DLG roads. This satellite data is collected at a larger scale, and is not intended to be viewed at a zoomed-in scale.

NOTE: The *Identify* button will list information for all Active and Inactive (current year) layer features combined. Active Thermal AVHRR and Previous AVHRR are displayed in separate layers so that the user need not to view numerous inactive features for the entire current year. The user can choose to display the Active Thermal AVHRR while not displaying the Previous AVHRR. BUT, an *Identify* will list ALL features, both Active and Previous. Thus, if a user has Active Perimeters visible as the active layer, a fire site will not display if no data has been received within the last 24 hours, BUT an *Identify* will list all current year data for that fire. The reverse is also true, i.e., if the Previous AVHRR layer is visible and active, an *Identify* will show all data for a fire site, Active AND Previous for the current year.

Map Legend:



For more information, please visit:

[Fire Monitoring with AVHRR](#)

[Advanced Very High Resolution Radiometer \(AVHRR\) Sensor Characteristics](#)

[AVHRR](#)

[Global Land 1-KM AVHRR Project](#)

Thermal MODIS

This layer displays information on fire locations using thermal images collected by the Moderate Resolution Imaging Spectroradiometer (MODIS) satellite. The MODIS instrument images the entire surface of the Earth every two days (daily in northern latitudes), making observations in 36 co-registered spectral bands at moderate spatial resolutions (250, 500, and 1000 meters). Thermal information is collected at 1000-meter spatial resolution. The collected thermal information is converted to ellipse-shaped vector polygons. These collections are processed through the MODLand Rapid Response System using the algorithm described by the MOD14 Users Guide. The thermal MODIS data is shown by the color of the symbol on the map. This thermal data is collected twice a day, at 2:00 PM EST and again at 12:00 AM EST and are then processed and merged into a single map, which is available by 3:00 AM EST.

The currency of the thermal MODIS data is shown by the color of the symbol on the map.

Map Legend:



Identification of a MODIS pixel as "fire" in this layer does not necessarily mean that the entire area represented by the pixel is on fire. The identification of a fire can be the result of a hot fire in a relatively small area, or a cooler fire over a larger area. At this time, there is no way to discriminate between these two possibilities. The geolocation of the centroid of the fire pixel is within one-half of one pixel (500-meters) of the location shown on the map.

On GeoMAC, the Thermal MODIS layer is updated twice daily at approximately 4:00 AM/PM Mountain Time. However, there may be gaps in daily coverage as explained below. If we have received no new data, the "expired" layers are not replaced. The layer is replaced as soon as we receive an updated file.

GeoMAC only displays data *as they are submitted*. Since data are not received for all fires, you may not be able to view every fire. Once a data file is more than 24 hours old, or is replaced by a more current file, it is displayed in gray in the Previous MODIS layer. Also, data are usually no longer collected once a fire is no longer growing in size and is mostly contained.

NOTE: We must set scale dependencies for the thermal layer to turn off when zoomed down to the scale of the 1:100K DLG roads. This satellite data is collected at a larger scale, and is not intended to be viewed at a zoomed-in scale.

NOTE: The Identify button will list information for all Active and Previous (current year) layer features combined. Active Thermal MODIS and Previous MODIS are displayed in separate layers so that the user need not view numerous inactive features for the entire current year. The user can choose to display the Active Thermal MODIS while not displaying the Previous MODIS. BUT, an Identify will list ALL features, both Active and Previous. Thus, if a user has Active Thermal MODIS visible as the active layer, a fire site will not display if no data has been received within the last 24 hours, BUT an Identify will list all current year data for that fire. The reverse is also true, i.e., if the Previous MODIS layer is visible and active, an Identify will show all data for a fire site, Active AND Previous, for the current year.

This fire location data is compiled by the [USDA Forest Service Remote Sensing Applications Center](#) in cooperation with [NASA Goddard Space Flight Center](#), the [University of Maryland](#), the [National Interagency Fire Center](#) and the [USDA Forest Service Missoula Fire Sciences Laboratory](#). For more information, see the [USDA - Forest Service Remote Sensing Applications Center - MODIS Active Fire Maps](#) and [University of Maryland -- MODIS Rapid Response Web Fire Maps - Continental U.S.](#)

Previous AVHRR

This layer contains all Thermal AVHRR data that were submitted to GeoMAC for the current year.

The USDA - Forest Service collects fire perimeters and heat source outlines as vector polygons from a thermal IR image of the 1km-resolution Advanced Very High Resolution Radiometer (AVHRR) satellite sensor. The polygons are updated twice daily by the USDA-FS office in Ogden, Utah, and are made available as ArcInfo export files on an FTP site.

AVHRR update times shown on the bottom of the Wildfire Information web page are derived from the original USDA-FS export file names, which are in Zulu/Greenwich Mean/Coordinated Universal Time format. Use the following to convert Zulu/GMT/CUT (GMT) to local time:

	Early April to late October	Rest of the Year
Eastern	GMT - 4 hours	GMT - 5 hours
Central	GMT - 5 hours	GMT - 6 hours
Mountain	GMT - 6 hours	GMT - 7 hours
Pacific	GMT - 7 hours	GMT - 8 hours

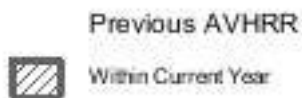
On GeoMAC, the Thermal AVHRR layer is generally updated daily, as the data are made available to us. However, there may be gaps in daily coverage as explained below. If we have received no new data, the "expired" layers are not replaced. The layer is replaced as soon as we receive an updated file.

GeoMAC only displays data as they are submitted. Since data are not received for all fires, you may not be able to view every fire. Once a data file is more than 24 hours old, or is replaced by a more current file, it is displayed in gray in the Previous AVHRR layer. Also, data are usually no longer collected once a fire is no longer growing in size and is mostly contained.

NOTE: We must set scale dependencies for the thermal layer to turn off when zoomed down to the scale of the 1:100K DLG roads. This satellite data is collected at a larger scale, and is not intended to be viewed at a zoomed-in scale.

NOTE: The Identify button will display information for all Active and Previous (current year) layer features combined. Active Thermal AVHRR and Previous AVHRR are displayed in separate layers so that the user need not view numerous inactive features for the entire current year. The user can choose to display the Active Thermal AVHRR while not displaying the Previous AVHRR. BUT, an Identify will list ALL features, both Active and Previous. Thus, if a user has Active Perimeters visible as the active layer, a fire site will not display if no data has been received within the last 24 hours, BUT an Identify will list all current year data for that fire. The reverse is also true, i.e., if the Previous AVHRR layer is visible and active, an Identify will list all data for a site, Active and Previous, for the current year.

Map Legend:



For more information, please visit:

[Fire Monitoring with AVHRR](#)

[Advanced Very High Resolution Radiometer \(AVHRR\) Sensor Characteristics](#)

[AVHRR](#)

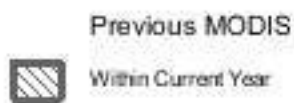
[Global Land 1-KM AVHRR Project](#)

Previous MODIS

This layer contains all Thermal MODIS data that were submitted to GeoMAC for the current year. Fire locations are displayed using thermal images collected by the Moderate Resolution Imaging Spectroradiometer (MODIS) satellite. This thermal data is collected twice a day, at 2:00 PM EST and again at 12:00 AM EST and are then processed and merged into a single map, which is available by 3:00 AM EST.

The currency of the thermal MODIS data is shown by the color of the symbol on the map.

Map Legend:



On GeoMAC, the Thermal MODIS layer is generally updated daily, as the data are made available to us. However, there may be gaps in daily coverage as explained below. If we have received no new data, the "expired" layers are not replaced. The layer is replaced as soon as we receive an updated file.

GeoMAC only displays data *as they are submitted*. Since data are not received for all fires, you may not be able to view every fire. Once a data file is more than 24 hours old, or is replaced by a more current file, it is displayed in gray in the Previous MODIS layer. Also, data are usually no longer collected once a fire is no longer growing in size and is mostly contained.

NOTE: We must set scale dependencies for the thermal layer to turn off when zoomed down to the scale of the 1:100K DLG roads. This satellite data is collected at a larger scale, and is not intended to be viewed at a zoomed-in scale.

NOTE: The Identify button will list information for all Active and Previous (current year) layer features combined. Active Thermal MODIS and Previous MODIS are displayed in separate layers so that the user need not view numerous inactive features for the entire current year. The user can choose to display the Active Thermal MODIS while not displaying the Previous MODIS. BUT, an Identify will list ALL features, both Active and Previous. Thus, if a user has Active Thermal MODIS visible as the active layer, a fire site will not display if no data has been received within the last 24 hours, BUT an Identify will list all current year data for that fire. The reverse is also true, i.e., if the Previous MODIS layer is visible and active, an Identify will show all data for a fire site, Active AND Previous, for the current year.

This fire location data is compiled by the USDA Forest Service Remote Sensing Applications Center in cooperation with [NASA Goddard Space Flight Center](#), the [University of Maryland](#), [National Interagency Fire Center](#) and the [USDA Forest Service Missoula Fire Sciences Laboratory](#). The thermal information is collected at a 1 km spatial resolution and converted to ellipse-shaped vector polygons. The geolocation of the centroid of each polygon is within one-half of one pixel (500-meters) of the location shown on the map. These two collections are processed by the MODLand Rapid Response system and merged into a single file. ([see how the MODIS on-board Calibrators work](#))

For more information, see the [USDA - Forest Service Remote Sensing Applications Center](#) -- Fire Maps and [University of Maryland -- MODIS Rapid Response Web Fire Maps - Continental U.S.](#)

RAWS Weather Stations

This layer displays the locations and names of Remote Automatic Weather Stations (RAWS) that are maintained by Federal and State agencies for the purpose of environmental monitoring. The data collected by RAWS stations includes reported weather conditions, such as temperature, relative humidity, and wind speed. This data is updated once an hour, on the half-hour, and is maintained for the previous 24 hours.

You can access this data by making this layer active, clicking on the Hyperlink button; and then clicking on a RAWS station on the map. The data collected by this station over the past 24 hours will be displayed in a new viewer.

Permanent stations are shown by a turquoise symbol. Temporary stations, set up near active large fire incidents, are shown in purple.

Map Legend:



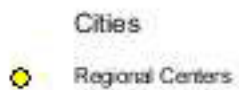
The National Weather Service, among other federal agencies, maintains a RAWS database, and monitors the weather data collected by this network. The weather stations are particularly important for monitoring the weather influence on wildland fuels for fire danger calculation. In addition, the RAWS provide a data source for fire weather forecasting in remote areas. The observations presented on the updated Boise Fire Weather web page (raws.boi.noaa.gov/obs), are the latest data received at the National Interagency Fire Center.

For more information, please visit [National Fire Weather Page](#).
[Metadata](#)

Cities

This map layer includes the locations of over 28,000 towns and cities in the United States. These locations were collected from The National Atlas of the United States™ published in 1970. This information was updated and supplemented with additional data from our Nation's official repository of domestic geographic names information, the [Geographic Names Information System](#).

Map Legend:



For more information, please visit the Download section of the [National Atlas of the United States](#) web site.

Counties

This map layer portrays the county boundaries of the United States. The data was obtained from the [ESRI](#) Data and Maps CD-ROM.

Map Legend:



Land Status

Land status information is available for the western United States and for Alaska. The map layer for the western US is a merge of BLM Land Ownership vector maps for 11 states: Arizona, California, Colorado, Idaho, Montana, New Mexico, Nevada, Oregon, Utah, Washington, and Wyoming. It is intended to illustrate state wide and regional land status. Land holders in the dataset are Federal, State, local governments and private lands. The map layer for Alaska is ??

This is a PRE-RELEASE, UNCERTIFIED cover.

Currentness for the source data coverages from each BLM state office are:

Alaska:
 Arizona: Unknown
 California: 1999 or earlier
 Colorado: 1990's
 Idaho: 1997
 Montana: Being updated continuously
 New Mexico: 2000
 Nevada: 1985-1998
 Oregon: Unknown
 Utah:
 Washington: Unknown
 Wyoming: 1998

Map Legend (lower 48):

Land Status	
	Bureau of Land Management (BLM)
	US Forest Service (USFS)
	Bureau of Indian Affairs (BIA)
	Department of Defense (DOD)
	National Park Service (NPS)
	US Fish and Wildlife Service (USFWS)
	Bureau of Reclamation (BOR)
	Department of Energy (DOE)
	US Department of Agriculture (USDA)
	Other Federal
	State
	County
	Private
	Water
	Other

Map Legend (Alaska):

Land Status	
	Bureau of Land Management (BLM)
	US Forest Service (USFS)
	Native Patent or IC
	Native Selected
	Metlakatla Indian Reserve
	Military
	National Park Service (NPS)
	US Fish and Wildlife Service (USFWS)
	State Selected
	State Patent or TA
	Private

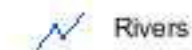
For more information, please visit the [Bureau of Land Management](http://www.blm.gov) website

Rivers

This map layer includes rivers and streams appropriate for display at scales of 1:25,000,000 or 1:2,000,000.

For more information, please visit the map layer section of the [National Atlas of the United States](http://www.nationalatlas.gov) web site.

Map Legend:



Roads

This map layer displays the major roads in the United States appropriate for display at scales of 1:25,000,000, 1:2,000,000 or 1:100,000. The amount of detail changes depending upon how much you zoom in or out on the map. As you zoom in, the level of detail increases, while as you zoom out, the level of detail decreases.

Map Legend:



For more information, please visit the Download section of the [National Atlas of the United States](http://www.nationalatlas.gov) web site.

Road Shields

The type of shield designates the road number of a State Highway, US Highway or Interstate Highway.

Map Legend:



States

This map layer portrays the state boundaries of the United States. The data was obtained from the [ESRI](http://www.esri.com) Data and Maps CD-ROM.

Map Legend:



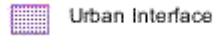
For more information, please visit the Download section of the [National Atlas of the United States](http://www.nationalatlas.gov) web site.

Urban Interface

The Urban Interface comes from the Nighttime Lights of the World dataset which contains the first satellite-based global inventory of human settlements, derived from nighttime data from the [Defense Meteorological Satellite Program \(DMSP\)](http://www.dmsp-ols.com) Operational Linescan System (OLS). The DMSP-OLS has the unique capability to observe faint sources of visible-near infrared emissions

present at the Earth's surface, including cities, towns, villages, gas flares, and fires. [National Geophysical Data Center \(NGDC\)](#) has developed algorithms for producing georeferenced fire and nighttime lights products.

Map Legend:



Water Bodies

This map layer portrays the streams and waterbodies of the United States that can be represented at a map scale of 1:25,000,000 (one inch on a map at that scale would equal about 395.6 miles on the land surface) or at a map scale of 1:2,000,000 (one inch on a map at that scale would equal about 31.6 miles on the land surface). Some small streams, ponds, lakes, and reservoirs cannot be portrayed at these scales. We have associated names to all stream segments and water bodies for which official geographic names were available. The map layer was compiled from a variety of sources.

Map Legend: 1:25,000,000 scale



Map Legend: 1:2,000,000 scale



For more information, please visit the [National Atlas of the United States](#) web site.